DEPARTMENT OF INTERIOR

U.S. GEOLOGICAL SURVEY

Pre-Tertiary bedrock geologic map of the Mariposa 1° by 2° quadrangle

by

Paul C. Bateman

U.S. Geological Survey

Open-File Report 87-670

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Menlo Park, California

1988

DESCRIPTION OF MAP UNITS

Numbers in parentheses are optimum U-Pb isotopic ages on zircon in millions of years before present, and numbers in brackets are previously unpublished Rb-Sr whole-rock age determinations in millions of years before present by R.W. Kistler. Rocks designated mid Cretaceous have isotopic ages that indicate an optimum age in the range of 96 to 100 million years before present

VOLCANIC ROCKS AND SURFICIAL DEPOSITS (Quaternary and Tertiary)

QT Surficial deposits and unmetamorphosed volcanic rocks

PLUTONIC ROCKS

ALL AREAS

Kg Granites, undivided (Late Cretaceous)

ap Dikes and small masses of aplite (Mesozoic)

g Fine-grained granite in small masses (Mesozoic)

dg Diorite and gabbro (Mesozoic)--Variable compositions, textures, and ages

WEST SLOPE OF THE SIERRA NEVADA

Tuolumne Intrusive Suite (Late Cretaceous)

Kjp Johnson Granite Porphyry--A central body of fine-grained granite bordered by a network of dikes. Contains sparse alkali-feldspar megacrysts and miarolitic cavities

Kcp Cathedral Peak Granodiorite (86)--Medium-grained biotite granodiorite. Contains conspicuous blocky alkali-feldspar megacrysts 2 to 5 cm across

Half Dome Granodiorite

Khdp Megacrystic facies--Medium-grained megacrystic hornblende-biotite granodiorite with a seriate texture. Biotite and hornblende commonly in euhedra

Khd Equigranular facies--Medium-grained granodiorite. Characterized by euhedral hornblende prisms as long as 1.5 cm, biotite books as much as 1 cm across, and conspicuous titanite

Kk Granodiorite of Kuna Crest (91)--As shown, includes tonalites of Glen Aulin (88) and Glacier Point and granodiorite of Grayling Lake. Dark-colored fine- to medium-grained granodiorite and tonalite

Possible earlier units of the Tuolumne Intrusive Suite

Kse Sentinel Granodiorite (Late Cretaceous)--Equigranular hornblende-biotite granodiorite. Abundant wedge-shaped titanite

Kyc Granodiorite of Yosemite Creek (Late Cretaceous)--Dark-gray, medium-to coarse-grained, porphyritic biotite-hornblende granodiorite. Locally contains plagioclase phenocrysts

John Muir Intrusive Suite[1] (Late Cretaceous)

Kev Evolution Basin Alaskite[1]--Light-colored medium- to fine-grained alaskite

Kmo Mono Creek Granite[1] (88)--Mostly weakly foliated biotite granite with blocky alkali-feldspar megacrysts. Similar to the Cathedral Peak Granodiorite of the Tuolumne Intrusive Suite except for the eastern part of the eastward projecting lobe, which is composed of light-colored equigranular granite

Krv Round Valley Peak Granodiorite (89)--Equigranular medium-grained granodiorite. Biotite and hornblende are evenly distributed in discrete euhedral crystals that give the rock a "tidy" look

Krc Granite of Rock Creek Lake--Medium- to coarse-grained light-colored biotite granite

Kle Lake Edison Granodiorite[1](90)--Equigranular medium-grained hornblende-biotite granodiorite. Contains abundant titanite

Krl Granodiorites of Red Lake, Eagle Peak, and Big Creek--Fine to medium-grained hornblende-biotite granodiorites. Core area of granodiorite of Eagle Peak and parts of granodiorite of Big Creek are megacrystic

Kbm Leucogranite of Bald Mountain--medium-grained equigranular, generally structureless, biotite granite

Kbb Leucogranites of Big Sandy Bluffs and Lion Point, and leucogranodiorites of Burrough and Black Mountains--Fine-to medium-grained leucocratic granites and granodiorites

Mount Givens Granodiorite (90)

Kmgp Megacrystic facies--Megacrystic biotite granite and granodiorite. Tabular alkali-feldspar megacrysts average 1.5 cm thick and 3 cm wide

Kmg Equigranular facies--Medium-grained well-foliated hornblende-biotite granodiorite. Minerals lack sharp definition. Biotite and hornblende occur both as discrete grains and in clusters

Klk Lamarck Granodiorite (90)--Medium-grained, generally seriate, hornblende-biotite granodiorite. Biotite and hornblende are evenly distributed in both clusters and in discrete crystals

Kbu Granodiorite of Bearup Lake (Late Cretaceous)--Equigranular granodiorite characterized by euhedral crystals of biotite and hornblende

Kgi Quartz diorite of Mount Gibson (Late Cretaceous)--Dark medium-grained pyroxene-bearing biotite-hornblende quartz diorite and tonalite

Intrusive suite of Washburn Lake (mid Cretaceous)

Kcc Granite porphyry of Cony Crags--Contains sparse phenocrysts of plagioclase, quartz, and alkali feldspar in a fine-grained groundmass

Ktl Granite of Turner Lake--Granite and felsic granodiorite containing tabular alkali-feldspar megacrysts 1 to 2 mm across in a medium-grained groundmass

Krd Granodiorite of Red Devil Lake (98)--Zoned from inclusion-rich hornblende-biotite granodiorite in the outer margins to biotite inclusion-free granite at the contact with the granite of Turner Lake

Intrusive suite of Merced Peak (mid Cretaceous)

Ktk Leucogranites of Timber Knob and Morris Creek--Very light gray, fine-grained, equigranular biotite leucogranite

Kja Granodiorite of Jackass Lakes (98)--Light-gray, medium-grained, biotite granodiorite. Contains numerous remnants of metamorphic and older plutonic rocks

Intrusive Suite of Buena Vista Crest (mid Cretaceous)

Kcl Granite of Chilnualna Lake--Fine-grained biotite granodiorite

Kbd Bridalveil Granodiorite[2]--As shown, includes the granodiorite of Horse Ridge. Mostly fine-grained granodiorite but includes tonalite and quartz diorite

Kbz Granodiorite of Breeze Lake--Light-gray seriate biotite granodiorite

Kol Granodiorite of Ostrander Lake--Medium-grained equigranular hornblende-biotite granodiorite and granite. Includes Hodgdon Ranch pluton. Generally contains 6 to 10 percent of anhedral hornblende and biotite.

Ki Granodiorites of Illilouette Creek (100) and Tamarack Creek, tonalite of Crane Creek, and Leaning Tower Granite[2]--Mostly dark, medium-grained, equigranular hornblende-biotite granodiorite and hornblende tonalite. Leaning Tower Granite is medium gray

Kqe Quartz diorite dikes in El Capitan--Intrusive dike-like masses in the face of El Capitan

Granitoids between the Goddard septum and Ritter Range roof pendant (mid Cretaceous)

Ksf Granodiorite of Shelf Lake--Medium-grained hornblende-biotite granodiorite and quartz diorite. Hornblende prisms commonly contain pyroxene cores

Kgp Leucogranite of Graveyard Peak (99)--Light-colored, medium-grained equigranular rock

Kkf Granodiorites of King and Fish Creeks and of Margaret Lakes--Fine- to coarse-grained and of varied composition and texture. Granodiorite of Margaret Lakes is generally sheared

Granitoids at the northwest end of the Mount Givens Granodiorite (Early Cretaceous ?)

Kca Granodiorite of Camino Creek--Fine-to medium-grained rock of variable composition and texture. Composition ranges from quartz diorite to granite

Kbe Granodiorites of Beasore Meadow and Grizzly Creek--Medium-grained equigranular hornblende-biotite granodiorite and tonalite. Granodiorite of Grizzly Creek is characterized by conspicuous rounded quartz phenocrysts averaging about 5 mm across

Granitoids southwest of the Goddard septum (Early Cretaceous)

Kwd Granodiorite of the White Divide--Megacrystic granodiorite and granite

Kfp Granite of Finger Peak--Medium-grained light-colored biotite granite. Contains about 5 percent biotite

Kmr Granodiorite of Mount Reinstein--Hornblende-biotite granodiorite containing 16 to 23 percent mafic minerals

Ktu Granite of Tunemah Lake--Felsic biotite granite containing 3 to 7 percent biotite

Kub Granodiorite of upper Blue Canyon--Medium-grained granodiorite

Kav Tonalite of Aspen Valley (Early Cretaceous?)--Dark, medium-grained biotite-hornblende tonalite and quartz diorite

Intrusive suite of Yosemite Valley (Early Cretaceous)

Kt Taft Granite and leucogranite of Ten Lakes--Biotite granite. Taft Granite is fine- to medium-grained. Leucogranite of Ten Lakes is medium- to coarse-grained

Krm Granite of Rancheria Mountain--Coarse-grained biotite granite and granodiorite. Alkali-feldspar megacrysts are locally abundant

Kec — El Capitan Granite (102)--Includes Double Rock, Mount Hoffman, and Gray Peak plutons. Coarse-grained equigranular to megacrystic biotite granite and granodiorite

Shaver Intrusive Suite[1] (Early Cretaceous)

Kdd — Granites of Dinkey Dome, Short Hair Creek, Sheepthief Creek, lower Bear Creek, Mushroom Rock, and north of Snow Corral Meadow--Medium-grained equigranular biotite granites. These rocks appear to have been emplaced during approximately the same interval of time but may not be exact equivalents

Ksp — Granite of Shuteye Peak (102)--Medium grained, equigranular to megacrystic granite and granodiorite

Ko — Granite of Ordinance Creek--Fine- to medium-grained granite. Characterized by glomerophenocrysts of biotite.

Kps — Granodiorite of the Pick and Shovel Mine area--Fine- to medium-grained highly variable rock ranging in composition from leucogranite to tonalite

Kmk — Granodiorite of McKinley Grove--Megacrystic hornblende-biotite granodiorite. Alkali-feldspar megacrysts 2 to 3 cm across are set in a medium-grained groundmass

Dinkey Creek Granodiorite[1] (104)

Kdcp — Megacrystic facies--Alkali-feldspar megacrysts are set in a medium-grained groundmass. Compositions range from granodiorite to granite

Kdc — Equigranular facies--Medium-grained, generally stongly foliated hornblende-biotite granodiorite. Contains abundant mafic inclusions and small clots. Euhedral crystals of biotite and hornblende are scarce

Possible additional units of the Shaver Intrusive Suite (Early Cretaceous)

Kwr — Granodiorites of Whisky Ridge (103) and Stevenson Creek--Hornblende-biotite granodiorites of uncertain affiliation

Ksl — Granite porphyry of Star Lakes [108 ± 4] (Early Cretaceous)--Granite porphyry, leucogranite porphyry, and granodiorite porphyry

Fine Gold Intrusive Suite[1] (Early Cretaceous)

Kkn — Knowles Granodiorite[1] (112)--Includes granodiorite southwest of Rabbit Hill and trondhjemite north of Eastman Lake. Medium-grained biotite granite. A widely used building stone

Kwt Ward Mountain Trondhjemite[1] (115)--Medium-grained biotite trondhjemite. Has a stong ductile (protoclastic) foliation in most places

Kar Granodiorites of Arch Rock, Sawmill Mountain (116), and Crane Flat; granites of Hogan, Goat, and Thornberry Mountains; tonalite south of the Experimental Range; and other small plutons of biotite granite and granodiorite--Medium- to coarse-grained rocks of variable composition, ranging from biotite granite and granodiorite to hornblende-biotite trondhjemite

Kbl Bass Lake Tonalite[1] (114)--Equigranular, typically medium gray, medium-grained hornblende-biotite tonalite.

Kro Tonalite of Ross Creek (113)--Dark, fine- to medium-grained tonalite, locally augite-biotite granodiorite

Kml Tonalite of Hillerton Lake (134) (Early Cretaceous)--Medium-grained hornblende-biotite tonalite similar to, but older than, Bass Lake Tonalite

Sheared granitoids of the Goddard septum (Jurassic? and Jurassic)

Jbd Granite of Bear Dome (Jurassic?)--Medium-grained xenomorphic-granular biotite granite. Marginal rock is fine grained

Jh Leucogranite of Hell For Sure Pass (Jurassic)--Light-colored medium-grained biotite granite

Jgd Granodiorite of Goddard Canyon (Jurassic)--Strongly sheared and altered

Jqs Fine-grained quartz syenite (157) (Late Jurassic)

Older granitic rocks of the western foothills (Late and Middle Jurassic)

Jwr Granite of Woods Ridge (151) (Late Jurassic)--Fine- to medium-grained megacrystic biotite granite and granodiorite. Contains tabular to blocky euhedral alkali-feldspar megacrysts and fine-grained anhedral biotite flakes

Jgc Tonalite of Granite Creek (163) (Middle Jurassic)--Medium-grained hornblende-biotite tonalite. Has a strong ductile foliation that parallels the principal cleavage in the adjacent country rocks. Locally shows lineation

um Ultramafic rocks (Jurassic? to late Paleozoic?--Chiefly light- to dark-green and black serpentinite, conspicuously reddish on weathered surfaces. Locally metamorphosed to aggregates of talc and olivine plus anthophyllite or actinolite

Kcf Granodiorites of Coyote Flat and Cartridge Pass (Late Cretaceous)--Form two small subequant plutons. Both plutons are compositionally zoned, the Coyote Flat weakly and the Cartridge Pass strongly, from granodiorite in the margins to granite in the core

Kae Quartz monzodiorite of Aeolian Buttes, granite of Mono Lake, and leucogranites of Ellery Lake and Williams Butte, Late Cretaceous)--Granite of Mono Lake is a medium-grained hornblende-biotite granite, and granite of Aeolian Buttes is white to light-gray granite that is strongly jointed and is characterized by discrete biotite books, hornblende needles. and large titanite subhedra

Kjl Granite of June Lake (Late Cretaceous)--Medium-grained megacrystic rock containing small alkali-feldspar megacrysts averaging about 1 cm across

Kmd Granodiorites of Mono Dome [93±6] and Tioga Lake (Late Cretaceous)--Medium-grained, dark-gray rocks. Granodiorite of Mono Dome grades to quartz diorite and contains pyroxene as well as amphibole. Amphibole in granodiorite of Mono Dome is mostly altered to chlorite

Kra Leucogranite of Rawson Creek (95) (Late Cretaceous)--Light-colored, equigranular, medium-grained biotite granite

Kin Inconsolable Quartz Monzodiorite[2] [105±11] (Early Cretaceous)--Dark, equigranular, fine-to medium-grained rock that contains less than 20 percent quartz

Jcd Leucogranite of Casa Diablo Mountain (161) (Late Jurassic)--medium-grained biotite leucogranite

Palisade Crest Intrusive Suite[1] (Middle Jurassic)

Jmc Granodiorite of McMurry Meadows [171±2]--Forms a bimodal pluton. Dark quartz monzodiorite in the margins grades inward through a narrow transitional zone to granite in the core

Jtn Tinemaha Granodiorite (164) [169±8]--Weakly megacrystic to seriate biotite-hornblende granodiorite and hornblende-biotite granite. The rock in the western lobe is more felsic inward from the western margin and upward in the interior

Possible additional units of the Palisade Crest Intrusive Suite (Middle Jurassic)

Jtb Leucogranite of Taboose Creek--Fine-grained rock that forms the core of a nested pair with the leucogranite of Red Mountain Creek.

Jrm Leucogranite of Red Mountain Creek--Medium-grained equigranular rock

Jcf Granite of Chickenfoot Lake (Middle Jurassic) [172 ± 8]--Fine- to medium- grained rock of variable composition and texture. Progressively darker southward toward a mass of gabbro

Jsh Sheared granites of Koip Crest and the South Fork of Bishop Creek (Middle Jurassic)

Scheelite Intrusive Suite[1] (210) (Late Triassic)

T t Tungsten Hills Granite[2]--Medium-grained seriate biotite granite

T lv Granite of Lee Vining Canyon - Light-colored medium-grained granite. Equigranular margins and megacrystic interior

T wc Wheeler Crest Granodiorite[2]--Typical rock is megacrystic. Tabular alkali feldspar megacrysts as long as 10 cm are set in a medium-grained groundmass

WHITE AND INYO MOUNTAINS AREA

Granites of the northeastern White Mountains (mid Cretaceous?)--Equigranular leucocratic biotite granites with somewhat different textures but only slightly different compositions. Relative ages not established

Kwb Granite of Boundary Peak

Kwm Granite of Marble Creek

Kwd Granite east of Dyer

Kwl Granite of Leidy Creek

Kwa Granite of McAfee Creek (100)

Kwig Granite of Indian Garden Creek

Kpp Megacrystic granites of Papoose Flat, Birch Creek, and Redding Canyon (Mid Cretaceous?)--Light-colored, coarse-grained, megacrystic. Granites of Papoose Flat and Birch Creek are strongly foliated near their margins

Kpe Granite of Pellisier Flats (Mid Cretaceous?)--Medium-gray rock of variable composition and texture; quartz monzonite in the margins grades to granite in the core. mx, area of abundant metavolcanic inclusions

Granitic rocks of the central and western White Mountains (Late Jurassic)

Jsf Granite of Sage Hen Flat (144)--Medium-grained biotite granite

Jca Granodiorite of Cabin Creek--Medium-gray, medium-grained biotite-hornblende granodiorite, locally megacrystic and locally foliated

Jmb Quartz monzonite of Mount Barcroft (161)--Dark gray, medium-grained quartz monzonite and quartz monzodiorite

Soldier Pass Intrusive Suite[1] (Middle Jurassic)

Jcc — Cottonwood Granite[2] (170)--Light-gray medium- to coarse-grained megacrystic granite. Tabular alkali feldspar megacrysts are as long as 3 cm

Jbe — Granodiorite of Beer Creek--Medium-gray, fine- to medium grained granodiorite, quartz monzodiorite, and quartz monzonite. Texture is notably ragged

Jj — Monzonite of Joshua Flat (170)--Medium-gray, fine- to medium-grained, equigranular weakly foliated monzonite and quartz monzonite

METAMORPHOSED SEDIMENTARY AND VOLCANIC ROCKS AND HYPABYSSAL INTRUSIVE ROCKS

ALL AREAS

Mz v — Metavolcanic rocks, undivided (Mesozoic)

WEST SLOPE OF THE SIERRA NEVADA

Minarets sequence (mid Cretaceous)

Kmp — Porphyries and other subvolcanic intrusions (100)

Kmv — Ash-flow tuff, breccia, and thinly laminated tuff (100)

Jm — Mariposa Formation and adjacent strata (Late Jurassic)

Jmgb — Metagabbro (Late? Jurassic)

Jbu — Greenstone of Bullion Mountain [187 ± 10] (Late and (or) Early Jurassic)

JT k — Kings sequence (Jurassic and (or) Triassic)--Quartzite, schist, hornfels, and marble

T b — Phyllite of Briceburg (Triassic)

T h — Phyllite and chert of Hite Cove (Early Triassic)

T bh — Phyllite of Briceburg and phyllite and chert of Hite Cove, undivided (Triassic)

Pz p — Quartzite of Pilot Ridge (Paleozoic?)--Includes argillite and phyllite

EASTERN SIERRA NEVADA, BENTON RANGE, AND WHITE AND INYO MOUNTAINS AREAS

Dana sequence (mid Cretaceous?)

Kdp Dacite porphyry

Kd Metavolcanic tuff, lapilli-tuff, shale, calc-silicate hornfels, and marble. Possibly correlative with the Minarets sequence

Kvp Dominantly pyroclastic strata (Early Cretaceous)--Includes flows and hypabyssal intrusions ranging in composition from rhyolite to basalt

Koip sequence and other dominantly metavolcanic strata (Jurassic and Triassic?)

JT p Intrusive andesite and diorite

JT v Ash-flow tuff, bedded tuff, lapilli tuff, tuff breccia, slump breccia, lava flows, and intrusive andesite and diorite

PPM Sedimentary and metasedimentary rocks (Permian to Mississippian)--Perdido Formation (Mississippian), Rest Spring Shale (Mississippian), and Keeler Canyon Formation (Pennsylvanian and Permian) in the Inyo Mountains, and the Bright Dot Formation (Pennsylvanian?), Mount Baldwin Marble (Pennsylvanian), Mildred Lake Hornfels (Pennsylvanian and (or) Permian), Lake Dorothy Hornfels (Pennsylvanian and (or) Permian), and Bloody Mountain Formation (Permian?) in the Mount Morrison roof pendant. Also includes metasedimentary strata in the Pine Creek roof pendant and other remnants of metasedimentary rocks in the eastern Sierra Nevada

DSO Sedimentary and metasedimentray strata (Devonian, Silurian?, and Ordovician)--Palmetto, Al Rose, Badger Flat, Barrel Spring, and Johnson Spring Formations (Ordovician) and the Sunday Canyon Formation (Devonian) in the Inyo and White Mountains, and the Buzztail Spring and Mount Aggie Formations (Ordovician?), Convict Lake Formation (Ordovician), Hilton Creek Marble (Ordovician?), Mount Morrison Sandstone (Ordovician or Silurian?), and sandstone and hornfels of Sevehah Cliff (Ordovician or Silurian?) in the Mount Morrison roof pendant. Also includes strata in the Bishop Creek roof pendant and in smaller remnants of metasedimentary rocks. Devonian strata may also be present.

Ce Emigrant? Formation (Late Cambrian)

Ctn Tamarack Canyon and Bonanza King Dolomites and Monola Formation (Late and Middle Cambrian)

Cmp Sedimentary and metasedimentary rocks (Early Cambrian)--Mule Spring, Saline Valley, Harkless, and Poleta Formations. In the White and Inyo Mountains. Marble and hornfels along the lower reaches of Big Pine Creek

Cu Undivided rocks (Late and Early Cambrian). In the White and Inyo Mountains

Pze Marble, slate, pelitic hornfels, calc-hornfels, metachert, and calcareous quartz sandstone (Early Paleozoic?) In the eastern Sierra Nevada and Benton Range

CPc Campito Formation (Cambrian and Late Proterozoic)

Pl Deep Spring Formation, Reed Dolomite, and Wyman Formation (Late Proterozoic)

1/ New name.
2/ Lithic term of name changed to reflect compositional classification recommended by the International Union of Geological Sciences

LIST OF 15-MINUTE QUADRANGLE GEOLOGIC MAPS USED IN COMPILATION

Bateman, P.C., 1965a, Geology and tungsten mineralization of the Bishop district, California: U.S. Geological Survey Professional Paper 470, 208 p. Included Bishop, Mount Tom, Big Pine, and northeastern part of Mount Goddard quadrangles.

-----1965b, Geologic map of the Blackcap Mountain quadrangle, Fresno County, California: U.S. Geological Survey Geologic Quadrangle Map GQ-428, scale 1:62,500.

-----(in press) Geologic map of the Bass Lake quadrangle, west-central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ , scale 1:62,500.

Bateman, P.C., and Busacca, A.J., 1982, Geologic map of the Millerton Lake quadrangle, west-central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map 1548, scale 1;62,500.

Bateman, P. C. and Krauskopf, K.B., 1987, Geologic map of the El Portal quadrangle, west-central Sierra Nevada, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-1998, scale 1:62,500.

Bateman, P.C., and Moore, J.G., 1965, Geologic map of the Mount Goddard quadrangle, Fresno and Inyo Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ-429, scale 1:62,500.

Bateman, P.C., and Wones, D.R., 1972, Geologic map of the Huntington Lake quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-987, scale 1:62,500.

Bateman, P.C., Busacca, A.J., Marchand, D.E., and Sawka, W.N., 1982, Geologic map of the Raymond quadrangle, Madera and Mariposa Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1555, scale 1:62,500.

Bateman, P.C., Kistler, R.W., Peck, D.L., and Busacca, A.J., 1983, Geologic map of the Tuolumne Meadows quadrangle, Yosemite National Park, California: U. S. Geological Survey Geologic Quadrangle Map GQ-1570, scale 1:62,500.

Bateman, P.C., Lockwood, J.P., and Lydon, P.A., 1971, Geologic map of the Kaiser Peak quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-894, scale 1;62,500.

Crowder, D.F., and Sheridan, M.F., 1972, Geologic map of the White Mountain Peak quadrangle, Mono County, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1012, Scale 1:62,500.

Crowder, D.F., Robinson, P.F., and Harris, D.L., 1972, Geologic map of the Benton quadrangle, Mono County, California and Esmeralda and Mineral Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1013, scale 1:62,500.

Dodge, F.C.W., and Calk, L.C., (in press) Geologic map of the Lake Eleanor quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1639, scale 1:62,500.

Huber, N.K., 1968, Geologic map of the Shuteye Peak quadrangle, Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-728, scale 1;62,500.

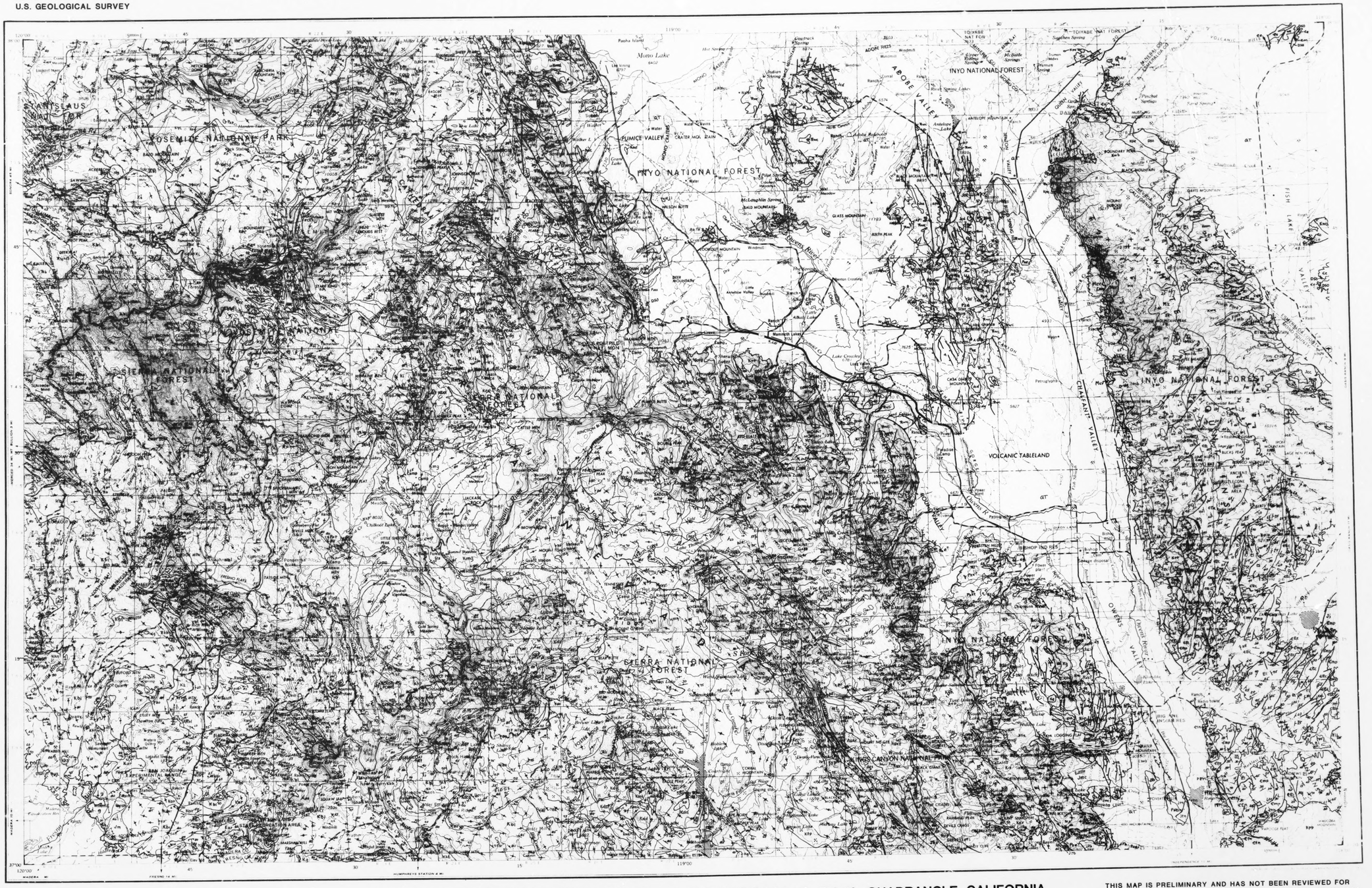
Huber, N.K., and Rinehart, C.D., 1965, Geologic map of the Devils Postpile quadrangle, Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ 437, scale 1:62,500.

Kistler, R.W., 1966, Geologic map of the Mono Craters quadrangle, Mono and Tuolumne Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ-462, scale 1;62,500.

--------1973, Geologic map of the Hetch Hetchy Reservoir quadrangle, Yosemite National Park, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1112, scale 1:62,500.
Krauskopf, K.B., 1971, Geologic map of the Mount Barcroft quadrangle, California-Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-960, scale 1:62,500.
--------1985, Geologic map of the Mariposa quadrangle, Mariposa County, California U.S. Geological Survey Geological Quadrangle Map GQ-1586, scale 1:62,500.
Krauskopf, K.B., and Bateman, P.C., 1977, Geologic map of the Glass Mountain quadrangle, Mono County, California, and Mineral County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1099, scale 1:62,500.
Lockwood, J.P., and Bateman, P.C., 1976, Geologic map of the Shaver Lake quadrangle, central Sierra Nevada, California: U.S. Geological Survey Quadrangle Map GQ-1271, scale 1:62,500.
Lockwood, J.P., and Lydon, P.A., 1975, Geologic map of the Mount Abbot quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1155, scale 1:62,500.
Nelson, C.A., 1966a, Geologic map of the Waucoba Mountain quadrangle, Inyo County, California: U.S. Geological Survey Geologic Quadrangle Map GQ-528, scale 1:62,500.
--------1966b, Geologic map of the Blanco Mountain quadrangle, Inyo and Mono Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ-529, scale 1:62,500.
Peck, D.L., 1980, Geologic map of the Merced Peak quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1531, scale 1:62,500.
Rinehart, C.D., and Ross, D.C., 1957, Geology of the Casa Diablo Mountain quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ-99, scale 1:62,500.
--------1964, Geology and mineral deposits of the Mount Morrison quadrangle, Sierra Nevada, California, with a section on A gravity study of Long Valley, by L.C. Pakiser: U.S. Geological Survey Professional Paper 385, 106 p.
Robinson, P.T., and Crowder, D.F., 1973, Geologic map of the Davis Mountain quadrangle: U.S. Geological Survey Geologic Quadrangle Map GQ-1078, scale 1:62,500.

DEPARTMENT OF INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN FILE REPORT 87-670
SHEET 1 OF 2
EXPLANATION OF MAP UNITS ACCOMPANIES MAP



PRE-TERTIARY BEDROCK GEOLOGIC MAP OF THE MARIPOSA 1° BY 2° QUADRANGLE, CALIFORNIA

COMPILED BY PAUL C. BATEMAN

SCALE 1:200,000

0 5 10 15 20 KILOMETERS

THIS MAP IS PRELIMINARY AND HAS NOT BEEN REVIEWED FOR CONFORMITY WITH U.S. GEOLOGICAL SURVEY EDITORIAL STANDARDS

DEPARTMENT OF INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN FILE REPORT 87-670
SHEET 2 OF 2
EXPLANATION OF MAP UNITS ACCOMPANIES MAP

CORRELATION OF MAP UNITS

VOLCANIC ROCKS AND SURFICIAL DEPOSITS

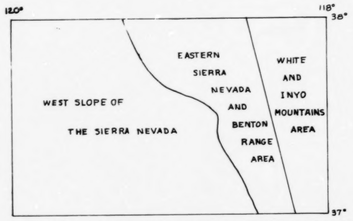
QT — QUATERNARY AND TERTIARY

PLUTONIC ROCKS

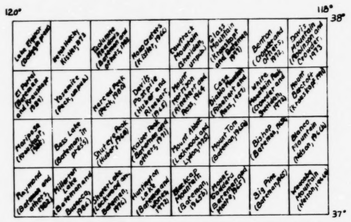
ALL AREAS	WEST SLOPE OF SIERRA NEVADA	EASTERN SIERRA NEVADA AND BENTON RANGE AREA	WHITE AND INYO MOUNTAINS AREA
Kg	Kjp, Kcp, Khdp, Khd, Kk, Ksc, Kyc, Kbu, Kg, Kev, Kmo, Krv, Kyc, Kle, Krl, Kbm, Kbb, Kmgp, Kmg, Klk — John Muir Intrusive Suite; Kcc, Ktl, Krd — Intrusive suite of Pinchot Butte; Kcl, Kbd, Kbz, Kol, KL, Kqe — Intrusive rocks of Silver Divide; Ksf, Ksp, Kkf — Granodiorite of Kettle Peak; Ktk, Kja — Intrusive rocks of Jackass Meadow; Kca, Kbe — Granodiorite of Chiquito Pass and Granite of Olivers Granodiorite; Kwd, Kfp, Kmr, Ktu, Kub — Granodiorite of Goddard; Kav — Granodiorite of Arrow Peak; Kwr, Kdd, Ksp, Ko, Kps, Kmk, Kdcp, Kdc — Shaver Intrusive Suite; Ksl — Granodiorite of Sugarloaf Valley; Kt, Krm, Kec — Intrusive suite of Yosemite Valley; Kkn, Kwt, Kar, Kbl, Kro, Kml — Finegold Intrusive Suite; Jwr — Granodiorite of Wishon Reservoir; Jbd, Jh, Jgd, Jqs — Granodiorite of Dinkey Creek and Granodiorite of Bear Creek; Jgc — Granodiorite of Gigger Creek	KcF, Kae, Kjl, Kmd, Kra — Kin — Jcd — Jtn, Jrm, Jmc, Jtm, Jct, Jsh — Piliasis Center Intrusive Suite; Jsf, Jcg, Jmb — Jcc, Jbe, Jj — Soldier Pass Intrusive Suite; Rt, Rlv, Rwc — Intrusive Suite; ap	Kwb, Kwm, Kwd, Kwl, Kwa, Kwig, Kpp, Kpe — Intrusive rocks in the Inyo Mountains and Benton Range; Kvp; Jm, Jmgb, Jbu; Jhk; Rb, Rh, Rbh

ALL AREAS	WEST SLOPE OF SIERRA NEVADA	EASTERN SIERRA NEVADA, BENTON RANGE, AND WHITE AND INYO MOUNTAINS AREAS
Late Cretaceous		
Mid Cretaceous	Kmp, Kmv	Kdp, Kd
CRETACEOUS		
Early Cretaceous		
Late Jurassic		
Middle Jurassic		
JURASSIC		
JURASSIC AND TRIASSIC		
Late Triassic		
TRIASSIC		
Early Triassic		

AREA OF MAP

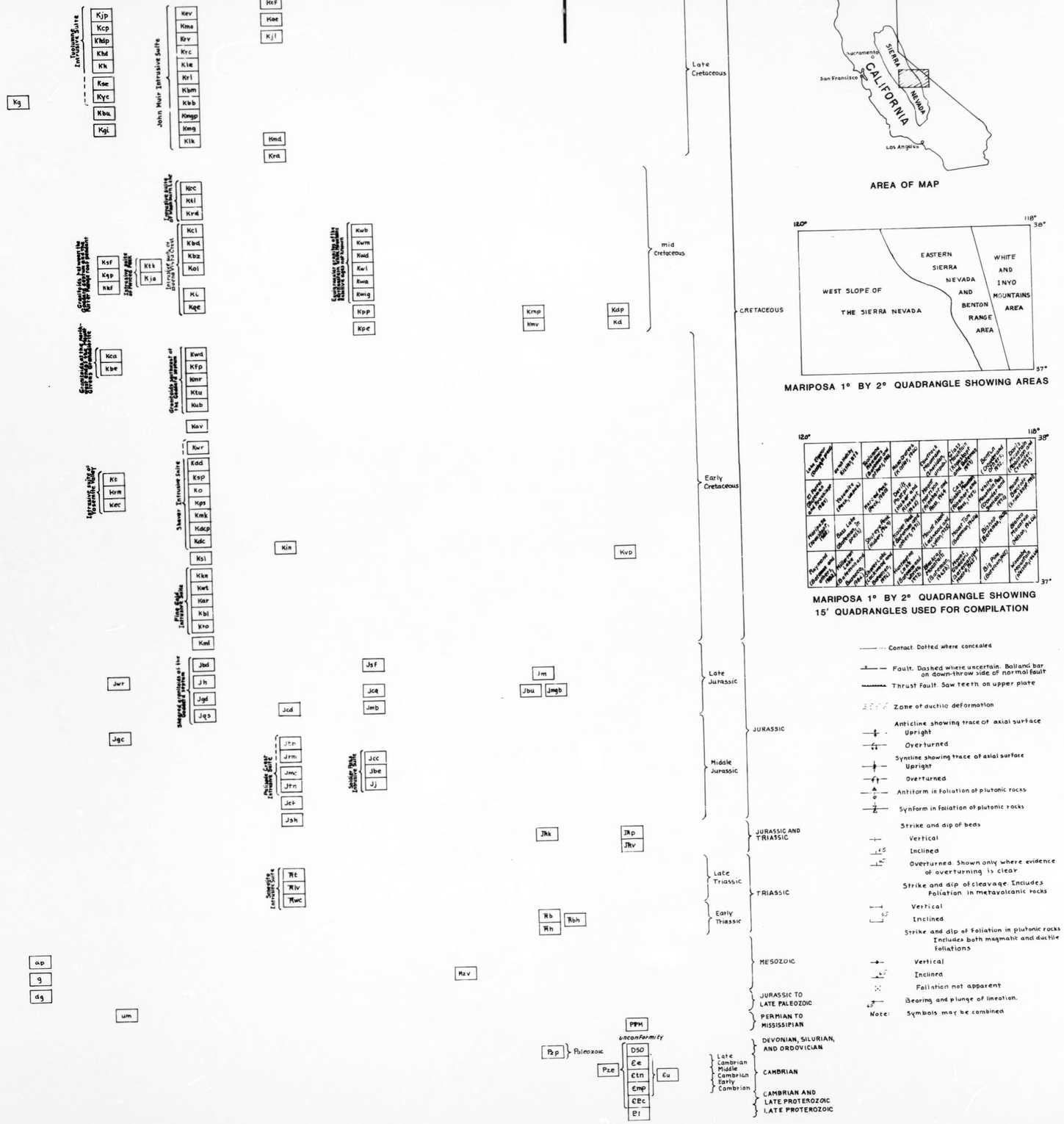


MARIPOSA 1° BY 2° QUADRANGLE SHOWING AREAS



MARIPOSA 1° BY 2° QUADRANGLE SHOWING 15' QUADRANGLES USED FOR COMPILATION

- Contact. Dotted where concealed
- Fault. Dashed where uncertain. Ball and bar on down-throw side of normal fault
- Thrust Fault. Saw teeth on upper plate
- Zone of ductile deformation
- Anticline showing trace of axial surface
  - Upright
  - Overturned
- Syncline showing trace of axial surface
  - Upright
  - Overturned
- Antiform in Foliation of plutonic rocks
- Synform in Foliation of plutonic rocks
- Strike and dip of beds
  - Vertical
  - Inclined
  - Overturned. Shown only where evidence of overturning is clear
- Strike and dip of cleavage. Includes foliation in metavolcanic rocks
  - Vertical
  - Inclined
- Strike and dip of foliation in plutonic rocks. Includes both magmatic and ductile foliations


Kg
Tuolumne Intrusive Suite
Kjp
Kcp
Khdp
Khd
Kh
Ksc
Kyc
Kba
Kgi
John Muir Intrusive Suite
Kev
Kma
Kry
Kyc
Kle
Krl
Kbm
Kbb
Kmgp
Kmg
Klk
Kmd
Kra
Granodiorite and quartz monzonite of Kuna Crest
Granodiorite and quartz monzonite of Jackass Meadow
Granodiorite and quartz monzonite of Red Peak
Kcc
Ktl
Krd
Kcl
Kbd
Kbz
Kol
KL
Kqe
Granodiorite and quartz monzonite of Cockscomb
Granodiorite and quartz monzonite of Tamarack Lake
Granodiorite and quartz monzonite of Lost Valley
Ksf
Ksp
Kkf
Ktk
Kja
Granodiorite and quartz monzonite of Sing Peak
Granodiorite and quartz monzonite of Mount Starr King
Granodiorite and quartz monzonite of Bridalveil Creek
Kca
Kbe
Granodiorite and quartz monzonite of the Granite Creek area
Granodiorite and quartz monzonite of Arch Rock
Granodiorite and quartz monzonite of Yosemite Valley
Granodiorite and quartz monzonite of the Cascade Creek area
Granodiorite and quartz monzonite of Taft Point
Granodiorite and quartz monzonite of Glacier Point
Granodiorite and quartz monzonite of Illilouette Creek basin
Granodiorite and quartz monzonite of Kwarter Creek
Granodiorite and quartz monzonite of Fine Gold Intrusive Suite
Granodiorite and quartz monzonite of Kuna Crest
Granodiorite and quartz monzonite of Kinnick Creek
Granodiorite and quartz monzonite of Pywiack Dome
Granodiorite and quartz monzonite of Bullfrog Lake
Granodiorite and quartz monzonite of Tenaya Lake
Granodiorite and quartz monzonite of Mount Hoffman
Granodiorite and quartz monzonite of Half Dome
Granodiorite and quartz monzonite of Clouds Rest
Granodiorite and quartz monzonite of Sentinel Dome